

WHAT IS CLAIMED IS:

1. An all-electric glass-melting deep furnace comprising:
a bottom; and
a side wall constructed by piling up fireproof bricks on the perimeter of the bottom,

wherein heating electrodes jut from an inner surface of the side wall and pass a current through the molten glass filled inside the side wall, a height of the side wall is twice or more than twice as long as an inside dimension of the bottom, and distances from the heating electrodes to the bottom of the furnace are as long as or longer than the inside dimension of the bottom.

2. The all-electric glass-melting deep furnace according to claim 1, wherein said side wall extends upwardly from the perimeter of the bottom and is rectangular in shape as viewed from the side.

3. The all-electric glass-melting deep furnace according to claim 1 or 2, wherein auxiliary electrodes for heating the molten glass by generating smaller amount of heat than said heating electrodes are provided below the heating electrodes, respectively.

4. The all-electric glass-melting deep furnace according to any one of claims 1 to 3, wherein said heating electrodes

are placed at different levels from the bottom of the furnace, respectively.

5. The all-electric glass-melting deep furnace according to any one of claims 1 to 4, wherein a feeder for discharging the molten glass from the furnace is provided at a lower position than a surface level of the molten glass, depending on a depth of the furnace .

6. The all-electric glass-melting deep furnace according to claim 5, wherein said molten glass is discharged from said feeder through a throat portion formed in the center of the bottom of the furnace.

7. The all-electric glass-melting deep furnace according to claim 1, wherein said side wall extends upwardly from the perimeter of the bottom, inclines inwardly, and is substantially trapezoidal in shape as viewed from the side.

8. The all-electric glass-melting deep furnace according to claim 7, wherein auxiliary electrodes for heating the molten glass by generating smaller amount of heat than said heating electrodes are provided below the heating electrodes, respectively.

9. The all-electric glass-melting deep furnace according to claim 7 or 8, wherein said heating electrodes are placed

at different levels from the bottom of the furnace,
respectively.

10. The all-electric glass-melting deep furnace according to any one of claims 7 to 9, wherein said feeder for discharging the molten glass from the bottom of the furnace is provided at a lower position than a surface level of the molten glass, depending on a depth of the furnace.

11. The all-electric glass-melting deep furnace according to claim 10, wherein said molten glass is discharged from said feeder through a throat portion formed in the center of the bottom of the furnace.

12. A method of refining and supplying glass, comprising the steps of:

charging glass raw materials into a furnace whose side wall's height is twice or more than twice as long as an inside dimension of a bottom of the furnace so as to thermally melt the glass raw materials;

heating molten glass obtained by thermally melting the glass raw materials with heating electrodes, said heating electrodes jutting from the side wall so as to increase the temperature of the molten glass and being placed at different levels from the bottom of the furnace;

charging further glass raw materials into the furnace so as to make a surface level of the molten glass twice or more

than twice as high as the lowest level of the heating electrodes among the group of electrodes;

convecting the molten glass above the heating electrodes while the molten glass is being heated with the heating electrodes; and

discharging the molten glass from the bottom of the furnace.

13. The method according to claim 12, wherein said molten glass is discharged through the bottom of the furnace from a feeder provided at a lower position than the surface level of the molten glass, depending on the depth of the furnace.